WHAT IS CLAIMED IS:

1. A method of preparing a pharmaceutical composition, the method comprising:

contacting *in vitro* a sample comprising at least one envelope virus with an amount of a cholesterol-sequestering agent effective to lyse the envelope virus, thereby resulting in a lysate; and

formulating at least a portion of the lysate in a pharmaceutical composition suitable for administration to a mammal, wherein the pharmaceutical composition comprises an amount of the lysate sufficient to generate an immune response against the envelope virus when administered to the mammal.

2. The method of claim 1, wherein the cholesterol-sequestering agent is a cyclodextrin.

3. The method of claim 2, wherein the cyclodextrin is a beta-cyclodextrin.

4. The method of claim 3, wherein the beta-cyclodextrin is 2-OH-propyl-beta-cyclodextrin.

5. The method of claim 1, wherein the envelope virus is a human immunodeficiency virus (HIV).

6. The method of claim 1, wherein the envelope virus is a human herpes virus.

7. The method of claim 1, wherein the envelope virus is a hepatitis virus.

8. The method of claim 1, wherein the envelope virus is a pox virus.

9. The method of claim 1, wherein the envelope virus is an influenza or a parainfluenza virus.

10. The method of claim 1, wherein the envelope virus is a human T-cell lymphotropic virus (HTLV).

11. The method of claim 1, wherein the envelope virus is a coronavirus.

12. The method of claim 1, wherein the sample comprises a plurality of different envelope viruses.

13. The method of claim 1, wherein the sample comprises a plurality of different strains of the envelope virus.

14. The method of claim 1, wherein the pharmaceutical composition is formulated for oral administration.

15. The method of claim 13, wherein the pharmaceutical composition comprises an enteric coating.

16. The method of claim 1, wherein the composition is formulated for intravenous administration.

17. The method of claim 1, wherein the composition is formulated for intramuscular administration.

18. The method of claim 1, wherein the composition is formulated for subcutaneous, intradermal, inhalation, rectal, vaginal, conjunctival, or otic administration.

19. A pharmaceutical composition comprising a cholesterol-sequestering agent and at least a portion of a lysate of an envelope virus, wherein the composition is suitable for administration to a mammal and comprises an amount of the lysate sufficient to generate an immune response against the envelope virus when administered to the mammal.

20. The pharmaceutical composition of claim 19, wherein the cholesterol-sequestering agent is a cyclodextrin.

21. The pharmaceutical composition of claim 20, wherein the cyclodextrin is a beta-cyclodextrin.

22. The pharmaceutical composition of claim 21, wherein the beta-cyclodextrin is 2-OH-propyl-beta-cyclodextrin.

23. The pharmaceutical composition of claim 19, wherein the composition is formulated for oral administration.

24. The pharmaceutical composition of claim 23, wherein the composition is formulated as a solid dosage form.

25. The pharmaceutical composition of claim 24, wherein the solid dosage form is an enteric coated solid dosage form.

26. A method of generating an immune response in a mammal, the method comprising administering to a mammal an amount of the pharmaceutical composition of claim 19 effective to generate an immune response against an envelope virus in the mammal.

27. The method of claim 26, further comprising administering to the mammal an amount of a cholesterol lowering agent effective to reduce the level of serum cholesterol in the mammal.

28. A method of treating a viral infection in a mammal, the method comprising:

selecting a mammal infected by an envelope virus or suspected of having been infected by an envelope virus; and

administering to the mammal an amount of a cholesterol-sequestering agent effective to reduce viral load in the mammal.

29. The method of claim 28, wherein the cholesterol-sequestering agent is a cyclodextrin.

30. The method of claim 29, wherein the cyclodextrin is a beta-cyclodextrin.

31. The method of claim 30, wherein the beta-cyclodextrin is 2-OH-propyl-beta-cyclodextrin.

32. The method of claim 28, wherein the amount of the cholesterol-sequestering agent administered to the mammal is effective to reduce viral load in the blood of the mammal.

33. The method of claim 28, wherein the amount of the cholesterol-sequestering agent administered to the mammal is effective to reduce viral load in an interstitial space of the mammal.

34. The method of claim 28, further comprising administering to the mammal an amount of a cholesterol lowering agent effective to reduce the level of serum cholesterol in the mammal.

35. The method of claim 28, wherein the cholesterol-sequestering agent is administered intravenously.

36. The method of claim 35, wherein the cholesterol-sequestering agent is administered by a bolus injection.

37. The method of claim 35, wherein the cholesterol-sequestering agent is infused into the mammal over a period of at least two minutes.

38. The method of claim 37, wherein the cholesterol-sequestering agent is administered in at least two intravenous administrations separated by an interval of at least one hour.

39. The method of claim 37, wherein the cholesterol-sequestering agent is administered in at least four intravenous administrations separated by an interval of at least 12 hours.

40. The method of claim 28, wherein the cholesterol-sequestering agent is co-administered with at least one antiviral agent.

41. The method of claim 28, wherein the method comprises measuring the titer of the envelope virus after administration of the cholesterol-sequestering agent.

42. The method of claim 28, wherein the method comprises measuring the titer of the envelope virus before administration of the cholesterol-sequestering agent.

43. The method of claim 28, wherein the method comprises measuring an immune response in the mammal against the envelope virus after administration of the cholesterol-sequestering agent.

44. The method of claim 28, wherein the method comprises measuring an immune response in the mammal against the envelope virus before administration of the cholesterol-sequestering agent.

45. The method of claim 28, wherein the cholesterol-sequestering agent is administered to a dermal surface of the mammal.

46. The method of claim 45, wherein the mammal has a skin lesion resulting from an infection by the envelope virus, and wherein the cholesterol-sequestering agent is applied topically to the skin lesion.

47. The method of claim 46, wherein the topical administration of the cholesterol-sequestering agent results in a reduction in viral load in the skin lesion.

48. The method of claim 46, wherein the envelope virus is a herpes virus.

49. The method of claim 48, wherein the herpes virus is human herpes virus 1.

50. The method of claim 48, wherein the herpes virus is human herpes virus 2.

51. The method of claim 46, wherein the envelope virus is a poxvirus.

52. The method of claim 45, wherein the cholesterol-sequestering agent is administered to the dermal surface in the form of a cream.

53. The method of claim 45, wherein the cholesterol-sequestering agent is co-administered with at least one antiviral agent.

54. A method of treating or preventing an infection in a mammal, the method comprising:

selecting a mammal infected by a microorganism or suspected of having been infected by a microorganism, wherein during at least a portion of its life cycle the microorganism enters a cell of the mammal by endocytosis; and

administering to the mammal an amount of a cholesterol-sequestering agent effective to reduce the load of the microorganism in the mammal.

55. The method of claim 54, wherein the microorganism is a bacterium.

56. The method of claim 54, wherein the microorganism is a mycobacterium.

57. The method of claim 54, wherein the microorganism is a virus.

58. The method of claim 54, wherein the microorganism is a fungus.

59. The method of claim 54, wherein the microorganism is a protozoan.

60. The method of claim 54, wherein the cholesterol-sequestering agent is administered to the upper respiratory tract of the mammal.

61. The method of claim 54, wherein the cholesterol-sequestering agent is administered to the lower respiratory tract of the mammal.

62. The method of claim 54, wherein the cholesterol-sequestering agent is administered to the mammal by inhalation.

63. The method of claim 54, wherein the cholesterol-sequestering agent is administered to the mammal by intrathecal administration.

64. A method of generating an immune response in a mammal, the method comprising:

contacting a population of lymphocytes *in vitro* with an amount of the pharmaceutical composition of claim 19 effective to generate an immune response against an envelope virus, thereby resulting in activated lymphocytes; and

administering the activated lymphocytes to a mammal.

65. The method of claim 64, wherein the population of lymphocytes is derived from the mammal prior to contacting with the pharmaceutical composition.

66. The method of claim 64, wherein the population of lymphocytes is derived from a second mammal prior to contacting with the pharmaceutical composition.

67. A method of treating a viral infection in a mammal, the method comprising:

removing blood from a mammal infected by an envelope virus;

contacting the blood with an amount of a cholesterol-sequestering agent effective to reduce viral load in the blood, thereby resulting in reduced-viral load blood; and

administering the reduced-viral load blood to the mammal.

68. The method of claim 67, wherein the blood of the mammal is perfused from a first blood vessel of the mammal, through an extracorporeal apparatus fluidly connected to the first vessel, wherein the extracorporeal apparatus adds the cholesterol-sequestering agent to the blood, and is reintroduced to the mammal in a second blood vessel that is fluidly connected to the extracorporeal apparatus.

69. The method of claim 67, further comprising removing all or a portion of the cholesterol-sequestering agent from the reduced-viral load blood prior to administering the reduced-viral load blood to the mammal.